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ABSTRACT

This study investigated the correlation between noncognitive variables and academic success in a freshman composition course. A sample of 257 freshmen taking an introductory English course completed a survey assessing their attitudes and achievement expectancies. The questionnaire measured self-ratings of overall academic ability, drive to achieve, writing ability, creativity, and self-confidence in intellectual ability. Correlations were computed for the entire sample and separately for male and female students. American College Testing Program Composite scores and self-ratings on academic ability, achievement drive, and academic expectations showed a significant positive correlation with English course grades. Results suggest that noncognitive variables should be considered when providing academic counseling during the freshman year. Four tables provide correlation data and results of multiple regression analyses. (Contains 29 references.) (CK)

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Noncognitive Variables as Predictors of Achievement
in Freshmen English

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Jean Endo
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Abstract

At many universities, an important component of the undergraduate curriculum is the completion of general education requirement. Despite its importance in the general education curriculum, relatively few studies have examined factors that are predictive of student achievement in freshmen English. The purpose of this study was to investigate the predictive relationship between noncognitive variables and students achievement in a freshmen composition course. The students in this study were a sample of 257 students who began college during the same fall semester and took an introductory English course during their first year of college. The results of this study indicated that academic background and noncognitive variables were significantly correlated with subsequent grade performance in a freshmen English course. Further, noncognitive variables were more closely related to overall grade performance than with satisfactory/unsatisfactory grade status. These findings are consistent with results of research on other types of general education courses.

At many universities, an important component of the undergraduate curriculum is the completion of general education requirements. These general education courses are typically directed toward the development of student competencies in skills such as reading, writing, listening, speaking, and mathematical skills. Further, in many instances students are encouraged to meet general education requirements during their first year of college. Consequently, students' achievement outcomes in general education courses can have a critical impact on whether or not students persist in college to the eventual completion of a bachelor's degree.

There is a continuing interest in the identification of student characteristics that are effective predictors of subsequent achievement outcomes. Messick (1979) has discussed the educational relevance of student characteristics such as experiential background factors, attitudes, interests, motives, curiosity, social sensitivity, values, and creativity and terms these personal attributes as noncognitive variables. Messick distinguishes these variables from "cognitive" variables which represent intellectual ability and subject-matter achievement. Two of the most commonly studied noncognitive variables are academic self-concept and achievement expectancies. These two variables have been shown to be related to the outcomes of college students on a variety of types of academic tasks.

Numerous studies have investigated the validity of admissions test scores for predicting students' cumulative grade performance (Sawyer & Maxey, 1981; House, 1994). However, a more limited number of studies have assessed the degree to which admissions test scores predict subsequent achievement in college English courses. Results from two studies suggest that ACT Composite scores are significantly correlated with students' grades in freshmen English

courses (Gorrell, 1983; Wood, 1982). However, more current research is needed to determine if these results would be obtained for more recent cohorts of college students.

Considerable research has focused on the efficacy of noncognitive variables for the prediction of student achievement in college. For instance, several recent studies have found achievement expectancies and academic self-concept to be significant predictors of college grade performance. Gordon (1989) found that achievement expectancies predicted grades in general education courses while House (1994) found significant correlations between achievement expectancies, academic self-concept, and cumulative college GPA. In addition, specific expectancies and self-concepts were shown to be significant predictors of grade performance in college chemistry (House, 1995a), mathematics (House, 1995b, 1995c), and psychology (House, Keeley, & Hurst, 1995). Similarly, academic self-concept has been found to be significantly related to the grade performance of college students in specific courses (Wheat, Tunnell, & Munday, 1991; Wilhite, 1990). Gerardi (1990) found a significant relationship between academic self-concept and the subsequent grade performance of minority engineering students. Finally, noncognitive variables have been shown to be significant predictors of college attrition (Gerdes & Mallinckrodt, 1994; House, 1992, 1993b; Stage & Rushin, 1993).

The purpose of this study was to investigate the predictive relationship between noncognitive variables and student achievement in a freshmen composition course. Despite its importance in the general education curriculum, relatively few studies have examined factors that are predictive of student achievement in freshmen English. This study was designed to extend previous research on the predictive relationships between noncognitive variables and student performance in general education courses such as science (House,

1995a) and mathematics (House, 1993a, 1995b). Further, this study was designed to investigate the joint contributions of academic background and noncognitive variables toward the explanation of student performance in freshmen English.

Methods

Students

The students included in this study were a sample of 257 students who began college during the same fall semester and took an introductory English course (Rhetoric and Composition) during their first year. In this sample, there were 112 (43.6%) male students and 145 (56.4%) female students. Further, the sample was comprised of 17 (6.6%) Hispanic students, 14 (5.4%) Asian-American students, 36 (14.0%) African-American students, 182 (70.8%) White students, and ethnic information was not available for 8 (3.1%) of the students in this sample

Measures

During orientation periods held on campus prior to the start of the fall semester of their freshmen year, students were requested to complete a survey that assessed students' attitudes and their achievement expectancies (CIRP, 1994). For use in this study, five items that measured academic self-concept were selected: self-ratings of overall academic ability, drive to achieve, writing ability, creativity, and self-confidence in intellectual ability. On these items, students indicated themselves to be: (A) lowest ten percent, (B) below average, (C) average, (D) above average, and (E) highest ten percent. Three items that measured specific achievement expectancies were also selected for use in this study: expectations of failing one or more courses in college,

of making at least a B average in college, and of graduating with honors. For these items, students estimated their probability of these outcomes as: (A) no chance, (B) little chance, (C) some chance, and (D) very good chance. In addition, two other predictor variables were included in this study: ACT Composite scores and the number of years of high school English taken by each student. Finally, the dependent measure examined in this study was the grade earned in a general education course (Rhetoric and Composition) taken during the first year of college.

Procedure

Several procedures were used to analyze the data from this study. First, correlation coefficients were computed to investigate the relationships between each of the predictor variables and subsequent grade performance in freshmen English. Correlations were computed for the entire sample and separately for male and female students.

Ordinary least-squares multiple regression procedures were used to investigate the relative ordering of each predictor variable toward the explanation of grade performance in freshmen English. These analyses assessed the ordering of noncognitive variables and academic background for explaining achievement. The multiple regression analyses were computed for the entire sample and separately for male and female students.

Analyses were conducted to investigate the efficacy of noncognitive variables and academic background for the explanation of whether or not students earned a satisfactory grade in freshmen English. Stepwise logistic regression procedures were used to determine the relative ordering of each predictor variable. Logistic regression is particularly suited to the analysis of binary outcomes such as passed/failed (O'Gorman & Woolson, 1991). In logistic regression, the relationship between a binary outcome measure and

a set of predictor variables (either categorical or continuous) is examined. Because it is a stepwise procedure, logistic regression provides an analysis of the relative ordering of each predictor variable toward the explanation of the outcome measure (Afifi, 1990). A number of logistic regression analyses were performed. For the first set, grades of A through D were classified as passing grades while a grade of F was considered failing. For the second set of logistic regression analyses, grades of A through C were considered to be satisfactory while grades of D and F were considered to be unsatisfactory. In each instance, logistic regression analyses were done for the entire sample and separately for male and female students.

Results

Correlations between each predictor variable and grades in freshmen English are presented in Table 1. Considering the entire sample, ACT Composite scores were found to be significantly correlated with English course grades. In addition, significant positive correlations were obtained for three noncognitive variables (self-ratings of overall academic ability, drive to achieve, and expectations of graduating with honors). These results indicate that students who had higher initial self-ratings on these variables subsequently earned higher grades in their freshmen English course. Further, there was a significant negative correlation between expectations of failing one or more courses in college and English course grades. In this instance, students who indicated that they were more likely to fail a college course in fact earned lower grades in their freshmen English course.

Correlations between the predictor variables and subsequent course grades for male and female students are also shown in Table 1. For male students, only one variable (self-ratings of overall academic ability) was significantly correlated with courses grades. Two variables (ACT Composite scores and self-ratings of overall academic ability) were significantly correlated with the freshmen English course grades of female students.

Results from the multiple regression analyses of grade performance in freshmen English are presented in Table 2. Considering the entire sample, two variables (ACT Composite scores and self-ratings of drive to achieve) significantly entered the regression equation. Further, the overall multiple regression equation explained 12.7% of the variance in English course grades and was significant ($F(10,246) = 3.59, p = .0002$). Considering male students, only one variable (self-ratings of overall academic ability) significantly entered the regression equation. The overall multiple regression equation for male students explained 10.9% of the variance in freshmen English grades and was not significant ($F(10,101) = 1.24, p = .2751$). With regard to female students, one variable (ACT Composite scores) significantly entered the multiple regression equation; further, two noncognitive variables (self-ratings of drive to achieve and writing ability) were near significance. For female students, the overall regression equation explained 20.5% of the variance in freshmen English course grades and was significant ($F(10,134) = 3.45, p = .0005$).

Findings from the logistic regression analyses of earning a passing (A-D) vs. failing (F) grade in freshmen English are summarized in Table 3. For the entire sample, only one variable (expectations of graduating with honors) was near significance. Also, the overall logistic regression equation

for the entire sample was not significant (chi-square = 12.44, df = 10, $p = .2564$). For male students, only one variable (self-ratings of overall academic ability) was near significance and the overall logistic regression equation was not significant (chi-square = 11.42, df = 10, $p = .3256$). For female students, two variables (expectations of graduating with honors and ACT Composite scores) were near significance. However, the overall logistic regression equation for female students was not significant (chi-square = 7.63, df = 10, $p = .6645$).

Results from the logistic regression analyses of earning a satisfactory (A-C) vs. unsatisfactory (D-F) grade are shown in Table 4. For the entire sample, only one variable (ACT Composite scores) significantly entered the logistic regression equation. However, the overall regression equation was not significant (chi-square = 14.07, df = 10, $p = .1699$). For male students, none of the predictor variables significantly entered the logistic regression equation and the overall regression equation was not significant (chi-square = 7.14, df = 10, $p = .7124$). With regard to female students, only one variable (ACT Composite scores) significantly entered the regression equation; however, the overall logistic regression equation for female students was not significant (chi-square = 13.32, df = 10, $p = .2061$).

Discussion

The results of this study indicate that academic background and non-cognitive variables were significantly correlated with subsequent grade performance in a freshmen English general education course. When the entire sample was considered, several noncognitive variables were predictive of achievement in freshmen English; further, the overall multiple regression

model was significant, indicating that the joint set of predictor variables explained a significant proportion of the total variance in freshmen English grades. However, the results of this study also indicated that noncognitive variables were not significant predictors of whether or not students earned a passing grade in their freshmen English course. Consequently, noncognitive variables were more closely related to overall grade performance than with satisfactory/unsatisfactory grade status. This finding is consistent with the results of a study of student achievement in a general education introductory psychology course (House, Keeley, & Hurst, 1995).

There were several limitations of the present study. First, only traditional-aged students were included in this analysis. Recent findings suggest that factors related to the college attrition of adult students may differ from the findings for traditional-aged students (Ashar & Skenes, 1993). Earlier research findings have indicated that adult learners often have different educational objectives and employ different learning strategies than younger students (Ansello, 1982; Heimstra, 1980). A second limitation of this study is that students from only one institution were included. Further research with students at other types of colleges and universities would enhance the generalizability of these findings. A third limitation of this study is that insufficient numbers of minority students were in this sample to allow meaningful analyses to be made for each student ethnic group. Recent research has identified factors that are related to the overall grade performance and attrition of Hispanic (Nora, 1987), Asian-American (Fuentes, Sedlacek, & Liu, 1994), African-American (Trippi & Stewart, 1989), and Native American students (McNamara, 1982; Pavel & Padilla, 1993). However, further research is needed to determine the specific factors that are related to minority students' grade performance in a freshmen English general education

course.

The results of this study indicate that noncognitive variables were significant predictors of student achievement in an English course taken during the first year of college. These results suggest that noncognitive variables should be given consideration by institutional researchers when investigating factors that predict academic success. These results also suggest that students' attitudes about their academic abilities and their expectancies for subsequent achievement in college should be considered when providing academic counseling during the freshmen year.

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Table 1

Correlations Between Predictor Variables and Grade Performance in Freshmen English (All Students and by Student Gender)

Predictor Variables	All Students	Male Students	Female Students
Number of Years of High School English	.082	.074	.084
Self-Rating of Overall Academic Ability	.168**	.187*	.171*
Self-Rating of Creativity	-.047	-.121	.006
Self-Rating of Drive to Achieve	.142*	.135	.120
Self-Confidence in Intellectual Ability	.015	.130	-.037
Self-Rating of Writing Ability	-.040	-.043	-.107
Expect to Fail One or More Courses in College	-.141*	-.143	-.120
Expect to Graduate With Honors	.132*	.136	.116
Expect to Make at Least a B Average	.119	.105	.128
ACT Composite Score	.260**	.166	.377**

** $p < .01$

* $p < .05$

Table 2

Summary of Multiple Regression Analyses of Grade Performance in Freshmen English (All Students and by Student Gender)

Step	Variable Entered	Model R-Square	F	p
All Students				
1	ACT Composite Score	.068	18.50	.0001
2	Self-Rating-Drive to Achieve	.100	9.07	.0029
3	Expect-Graduate With Honors	.106	1.86	.1736
4	Self-Confidence Intell. Ability	.112	1.73	.1901
5	Expect-Fail 1 or More Courses	.117	1.35	.2472
6	Self-Rating-Writing Ability	.120	0.91	.3419
7	Years of H.S. English	.125	1.21	.2717
8	Self-Rating-Creativity	.126	0.44	.5082
9	Self-Rating-Overall Academic Ability	.127	0.30	.5847
10	Expect-Make at Least a B Average	.127	0.00	.9984
Male Students				
1	Self-Rating-Overall Academic Ability	.035	3.98	.0486
2	Self-Rating-Creativity	.049	1.56	.2143
3	Self-Confidence Intell. Ability	.062	1.50	.2233
4	Expect-Fail 1 or More Courses	.073	1.26	.2642
5	Expect-Graduate With Honors	.080	0.89	.3475
6	ACT Composite Score	.090	1.09	.2986
7	Self-Rating-Drive to Achieve	.101	1.34	.2498
8	Years of H.S. English	.108	0.79	.3747
9	Self-Rating-Writing Ability	.109	0.14	.7098
10	Expect-Make at Least a B Average	.109	0.00	.9560
Female Students				
1	ACT Composite Score	.142	23.64	.0001
2	Self-Rating-Drive to Achieve	.161	3.32	.0706
3	Self-Rating-Writing Ability	.181	3.31	.0712
4	Expect-Graduate With Honors	.186	0.90	.3455
5	Self-Confidence Intell. Ability	.194	1.35	.2480
6	Years of H.S. English	.197	0.53	.4677
7	Self-Rating-Creativity	.199	0.41	.5221
8	Self-Rating-Overall Academic Ability	.202	0.50	.4816
9	Expect-Make at Least a B Average	.204	0.40	.5286
10	Expect-Fail 1 or More Courses	.205	0.07	.7927

Table 3

Summary of Logistic Regression Analyses of Earning a Passing (A-D) vs. Failing (F) Grade (All Students and by Student Gender)

Step	Variable Entered	Chi-Square	p
All Students			
1	ACT Composite Score	5.27	.0217
2	Expect to Graduate With Honors	3.31	.0688
3	Expect to Fail 1 or More Courses	2.17	.1406
4	Expect to Make at Least a B Average	1.21	.2719
5	Self-Rating of Drive to Achieve	0.60	.4400
6	Self-Rating of Writing Ability	0.29	.5902
7	Self-Rating of Overall Academic Ability	0.48	.4862
8	Self-Confidence in Intellectual Ability	0.09	.7584
9	Years of High School English	0.02	.8988
10	Self-Rating of Creativity	0.01	.9325
Male Students			
1	Self-Rating of Overall Academic Ability	3.70	.0543
2	Self-Rating of Drive to Achieve	2.10	.1475
3	Expect to Fail 1 or More Courses	1.63	.2014
4	Expect to Make at Least a B Average	2.03	.1541
5	Self-Rating of Writing Ability	1.78	.1827
6	Expect to Graduate With Honors	0.70	.4013
7	ACT Composite Score	0.54	.4634
8	Self-Confidence in Intellectual Ability	0.24	.6222
9	Self-Rating of Creativity	0.14	.7081
10	Years of High School English	0.00	.9892
Female Students			
1	Expect to Graduate With Honors	3.23	.0725
2	ACT Composite Score	2.83	.0924
3	Expect to Fail 1 or More Courses	0.93	.3361
4	Self-Confidence in Intellectual Ability	1.18	.2768
5	Expect to Make at Least a B Average	0.17	.6774
6	Self-Rating of Creativity	0.07	.7968
7	Self-Rating of Writing Ability	0.02	.8985
8	Self-Rating of Drive to Achieve	0.01	.9168
9	Self-Rating of Overall Academic Ability	0.00	.9524
10	Years of High School English	0.00	.9764

Table 4

Summary of Stepwise Logistic Regression Analyses of Earning a Satisfactory (A-C) vs. Unsatisfactory (D-F) Grade (All Students and by Student Gender)

Step	Variable Entered	Chi-Square	p
All Students			
1	ACT Composite Score	6.25	.0124
2	Expect to Graduate With Honors	2.70	.1002
3	Self-Rating of Creativity	1.73	.1886
4	Expect to Fail 1 or More Courses	1.53	.2157
5	Self-Rating of Drive to Achieve	1.30	.2539
6	Self-Confidence in Intellectual Ability	0.56	.4534
7	Expect to Make at Least a B Average	0.49	.4825
8	Self-Rating of Writing Ability	0.20	.6568
9	Self-Rating of Overall Academic Ability	0.03	.8641
10	Years of High School English	0.00	.9930
Male Students			
1	Self-Rating of Creativity	1.99	.1583
2	Expect to Fail 1 or More Courses	1.99	.1588
3	ACT Composite Score	1.19	.2758
4	Expect to Make at Least a B Average	0.71	.4006
5	Expect to Graduate With Honors	1.55	.2131
6	Self-Rating of Drive to Achieve	0.20	.6566
7	Self-Rating of Overall Academic Ability	0.11	.7379
8	Self-Confidence in Intellectual Ability	0.01	.9295
9	Years of High School English	0.00	.9568
10	Self-Rating of Writing Ability	0.00	.9802
Female Students			
1	ACT Composite Score	7.62	.0058
2	Expect to Graduate With Honors	2.17	.1407
3	Self-Rating of Writing Ability	2.33	.1268
4	Self-Rating of Drive to Achieve	1.39	.2382
5	Self-Confidence in Intellectual Ability	0.58	.4459
6	Expect to Fail 1 or More Courses	0.27	.6031
7	Expect to Make at Least a B Average	0.06	.8045
8	Self-Rating of Creativity	0.06	.8123
9	Years of High School English	0.00	.9456
10	Self-Rating of Overall Academic Ability	0.00	.9470